Demand and Context Working Group

DUSEL Workshop 1

August 13, 2004

3:00 p.m.

How do we build a case for DUSEL

The importance of the science and engineering

Fascinating scientific questions and dreams

Unique in the world (see next slide)

Oversubscription of SNO Lab

Reliable estimation of the demand

Part of the Technical Requirement matrices

ESSENTIAL TO FILL THEM

Include scale in terms of number of people/ cost

Add and renormalize

Compilation of budget and number of people in the community

Likely evolution

Use experience and data from SNO Lab

European studies

Extrapolate likely evolution 15-30 years

Necessity for DUSEL - Community

Central, expandable location

Essential for the future coherence of the underground science community

It would be better to have our own lab under our own oversight

The physics and geo-science community is sick of borrowing space from nations with better facilities!

Future strength of the U.S. physics and geoscience communities

Emphasize the *human* context of science

Sense of community, locus for education

Multidisciplinary

Hope to bring together different, disparate communities

- Synergies
- Creativity
- Education

International Aspects

Unique aspects

Earth Science: Deep, long term is unique

Physics: Depth ?

Long base line + accelerators

Strategic importance

- as large scale experiments become international , important to have US site to have US teams leading the projects
- We want the U.S. to be a leader in geoscience techniques
  - Energy sciences (finding oil deposit, etc.)
  - Underground construction
- Education of our scientists and engineers

- Homeland security

(be sure that we retain openness and access for non-citizens in the non-classified part of the facility)

Role of SNO Lab

Clearly important in the next 6-8 years

A component of US DUSEL program can be at SNO Lab

- Lab to Lab agreement
- US Participation in potential extension ???

  Solicitation 2 may make this more explicit
- Limitations: SNOLAB is a working mine

  Access limitation

  it is unlikely to be willing to host certain types of work (geoscience, etc.)

International Context

Relationship with EarthScope

- Complementary
- Coordination

Japan, China and European Facilities

Relationship to SNOLAB

Initial major question – How do we show that DUSEL is not redundant to SNOLAB?

- SNOLAB may satisfy much of the community's near-term need for "small-scale", deep physics
- SNOLAB alone is too small for the "medium-term" experiments in preparation.
- SNOLAB is oversubscribed by a factor of ~4
- SNOLAB is a working mine – it is unlikely to be willing to host certain types of work (geoscience, etc.)
- *Need scientific arguments, not just "we need two SNOLABs"*